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Shampoozusammenstellungen

Composition pour shampooings

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- **CHEMICAL ABSTRACTS, vol. 97, no. 10, September 1982, page 403, abstract no. 78685z, Columbus, Ohio, US; & JP-A-82 56 414 (LION CORP.) 05-04-1982**

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Description

The present invention is related to conditioning shampoos which have a dispersed, non-volatile silicone phase and are stabilized through the use of certain long chain materials.

Human hair becomes soiled due to its contact with the surrounding atmosphere and, to a greater extent, from sebum secreted by the head. The build-up of the sebum causes the hair to have a dirty feel and an unattractive appearance. The soiling of the hair necessitates it being shampooed with frequent regularity.

Shampooing the hair cleans by removing excess soil and sebum. However, the shampooing process has disadvantages in that the hair is left in a wet, tangled and generally unmanageable state. A variety of approaches have been developed to alleviate the after-shampoo problems. These range from the inclusion of hair conditioning aids in shampoos to post-shampoo application of hair conditioners, i.e., hair rinses. Hair rinses typically work by depositing a polymeric film or other material onto the hair. However, such solutions to a very prevalent problem have not been fully satisfactory. For one thing, hair rinses are generally liquid in nature and must be applied in a separate step following the shampooing, left on the hair for a length of time, and rinsed with fresh water. This, of course, is time consuming and is not convenient.

While shampoos have been disclosed which contain conditioning aids, they have not been totally satisfactory for a variety of reasons. One problem relates to compatibility problems between good cleaning anionic surfactants and the fatty cationic agents which are good conditioning agents. This caused other surfactants such as nonionics, amphoterics and zwitterionics to be examined by workers in the field. Many of these efforts are reflected in patents issued in the conditioning shampoo area. See for example US-A-3,849,348, US-A-3,990,991, and US-A-3,822,312.

The use of these other surfactants solved many of the compatibility problems but still did not provide complete answers in all areas. For instance cationic conditioners may not deliver the desired level of softness desired by users. Materials which can provide increased softness are silicones, both those which are soluble as well as insoluble in the shampoo matrix.

Silicones in shampoo compositions have been disclosed in a number of different publications. Such publications include US-A-2,826,551, US-A-3,964,500, US-A-4,364,837, and GB-A-0,849,433. Other publications include US-A-3,957,970 which discloses shampoos containing a solubilized silicone and certain polyethyleneglycol esters, and EP-A-0,095,238, Chemical Abstracts No 78685 z, Vol 97, No 10, and JP-A-8256414 on hair compositions containing silicones. US-A-4 337 166 describes compositions containing certain cyclic siloxanes and includes an example containing Empicol 0627 as a pearlising agent. While these patents disclose silicone containing compositions, they also do not provide answers to all of the problems encountered in making a totally satisfactory product. One problem is that of keeping a dispersed, insoluble silicone material suspended and the total product stable. A variety of materials have been included in silicone containing shampoos for purposes of thickening and stabilization but totally satisfactory solutions are lacking. It has been surprisingly found that certain long chain acyl derivatives can provide stabilization without interfering unduly with deposit of the silicone material onto the hair and other shampoo functions.

It is an object of the present invention to provide a stable silicone containing conditioning shampoo.

It is a further object of the present invention to provide silicone shampoo compositions containing certain acyl derivatives.

These and other objects will become readily apparent from the detailed description which follows.

Unless otherwise indicated, all percentages and ratios herein are by weight.

The present invention relates to a shampoo composition comprising from 5% to 70% of a synthetic surfactant, from 0.01% to 10.0% of a dispersed insoluble, non-volatile silicone, 0.5% to 5.0% of a suspending agent selected from long chain acyl derivatives and mixtures thereof, said acyl derivative being present in the shampoo composition in the form of crystals, and water wherein the acyl derivative has an average particle size in the shampoo compositions of about 10 µm or less. These as well as optional components are described in detail below.

The essential components of the present invention are given in the following paragraphs.

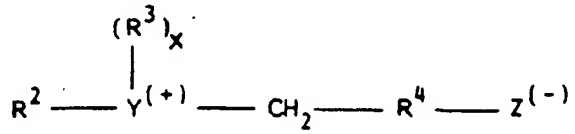
Surfactant

An essential component of the present compositions is a surfactant. The surfactant, which may be selected from any of a wide variety of synthetic anionic, amphoteric, zwitterionic and nonionic surfactants, is present at a level of from 5% to 70%, preferably from 10% to 30%.

Synthetic anionic surfactants can be exemplified by the alkali metal salts of organic sulfuric reaction products having in their molecular structure an alkyl radical containing from 8 - 22 carbon atoms and a sulfonic acid or sulfuric acid ester radical (included in the term alkyl is the alkyl portion of higher acyl radicals). Preferred are the sodium, ammonium, potassium or triethanolamine alkyl sulfates, especially those obtained by sulfating the higher alcohols (C_8 - C_{18} carbon atoms), sodium coconut oil fatty acid monoglyceride sulfates and sulfonates; sodium or potassium salts of sulfuric acid esters of the reaction product of 1 mole of a higher fatty alcohol (e.g., tallow or coconut oil alcohols) and 1 to

12 moles of ethylene oxide; sodium or potassium salts of alkyl phenol ethylene oxide ether sulfate with 1 to 10 units of ethylene oxide per molecule and in which the alkyl radicals contain from 8 to 12 carbon atoms, sodium alkyl glyceryl ether sulfonates; the reaction product of fatty acids having from 10 to 22 carbon atoms esterified with isethionic acid and neutralized with sodium hydroxide; water soluble salts of condensation products of fatty acids with sarcosine; and other known in the art.

Zwitterionic surfactants can be exemplified by those which can be broadly described as derivatives of aliphatic quaternary ammonium, phosphonium, and sulfonium compounds, in which the aliphatic radicals can be straight chain or branched, and wherein one of the aliphatic substituents contains from about 8 to 18 carbon atoms and one contains an anionic water-solubilizing group, e.g., carboxy, sulfonate, sulfate, phosphate, or phosphonate. A general formula for these compounds is:



wherein R^2 contains an alkyl, alkenyl, or hydroxy alkyl radical of from about 8 to about 18 carbon atoms, from 0 to about 10 ethylene oxide moieties and from 0 to 1 glyceryl moiety; Y is selected from nitrogen, phosphorus, and sulfur atoms; R^3 is an alkyl or monohydroxyalkyl group containing 1 to about 3 carbon atoms; X is 1 when Y is a sulfur atom and 2 when Y is a nitrogen or phosphorus atom; R^4 is an alkylene or hydroxyalkylene of from 1 to about 4 carbon atoms and Z is a radical selected from the group consisting of carboxylate, sulfonate, sulfate, phosphonate, and phosphate groups.

Examples include:

4-[N,N-di(2-hydroxyethyl)-N-octadecylammonio]-butane-1-carboxylate;
5-[S-3-hydroxypropyl-S-hexadecylsulfonio]-3-hydroxypentane-1-sulfate;
3-[P,P-diethyl-P-3,6,9-trioxatetradecoxylphosphonio]-2-hydroxypropane-1-phosphate;
3-[N,N-dipropyl-N-3-dodecoxy-2-hydroxypropylammonio]-propane-1-phosphonate;
3-(N,N-dimethyl-N-hexadecylammonio)propane-1-sulfonate;
3-(N,N-dimethyl-N-hexadecylammonio)-2-hydroxypropane-1-sulfonate;
4-[N,N-di(2-hydroxyethyl)-N-(2-hydroxydodecyl)ammonio]-butane-1-carboxylate;
3-[S-ethyl-S-(3-dodecoxy-2-hydroxypropyl)sulfonio]-propane-1-phosphate;
3-[P,P-dimethyl-P-dodecylphosphonio]-propane-1-phosphonate; and
5-[N,N-di(3-hydroxypropyl)-N-hexadecylammonio]-2-hydroxypentane-1-sulfate.

Other zwitterionics such as betaines are also useful in the present invention. Examples of betaines useful herein include the high alkyl betaines such as coco dimethyl carboxymethyl betaine, lauryl dimethyl carboxymethyl betaine, lauryl dimethyl alpha-carboxy-ethyl betaine, cetyl dimethyl carboxymethyl betaine, lauryl bis-(2-hydroxy-ethyl) carboxy methyl betaine, stearyl bis-(2-hydroxy-propyl) carboxymethyl betaine, oleyl dimethyl gamma-carboxypropyl betaine, lauryl bis-(2-hydroxypropyl) alpha-carboxyethyl betaine, etc. The sulfobetaines may be represented by coco dimethyl sulfopropyl betaine, stearyl dimethyl sulfopropyl betaine, lauryl dimethyl sulfoethyl betaine, lauryl bis-(2-hydroxy-ethyl) sulfopropyl betaine and the like; amido betaines and amidosulfobetaines, wherein the $RCONH(CH_2)_3$ radical is attached to the nitrogen atom of the betaine are also useful in this invention. The amido betaines are preferred for use in some of the compositions of this invention. A particularly preferred composition utilizes an amido betaine, a quaternary compound, a silicone, a suspending agent and has a pH of from 2 to 4.

Examples of amphoteric surfactants which can be used in the compositions of the present invention are those which can be broadly described as derivatives of aliphatic secondary and tertiary amines in which the aliphatic radical can be straight chain or branched and wherein one of the aliphatic substituents contains from about 8 to about 18 carbon atoms and one contains an anionic water solubilizing group, e.g., carboxy sulfonate, sulfate, phosphate, or phosphonate. Examples of compounds falling within this definition are sodium 3-dodecylaminopropionate, sodium 3-dodecylaminopropane sulfonate, N-alkyltaurines such as the one prepared by reacting dodecylamine with sodium isethionate according to the teaching of US-A-2,658,072, N-higher alkyl aspartic acids such as those produced according to the teaching of US-A-2,438,091, and the products sold under the trade name "Miranol(RTM)" and described in US-A-2,528,378.

Nonionic surfactants, which are preferably, used in combination with an anionic, amphoteric or zwitterionic surfactant, can be broadly defined as compounds produced by the condensation of alkylene oxide groups (hydrophilic in nature) with an organic hydrophobic compound, which may be aliphatic or alkyl aromatic in nature. Examples of pre-

ferred classes of nonionic surfactants are:

1. The polyethylene oxide condensates of alkyl phenols, e.g., the condensation products of alkyl phenols having an alkyl group containing from about 6 to 12 carbon atoms in either a straight chain or branched chain configuration, with ethylene oxide, the said ethylene oxide being present in amounts equal to 10 to 60 moles of ethylene oxide per mole of alkyl phenol. The alkyl substituent in such compounds may be derived from polymerized propylene, diisobutylene, octane, or nonane, for example.
2. Those derived from the condensation of ethylene oxide with the product resulting from the reaction of propylene oxide and ethylene diamine products which may be varied in composition depending upon the balance between the hydrophobic and hydrophilic elements which is desired. For example, compounds containing from about 40% to about 80% polyoxyethylene by weight and having a molecular weight of from about 5,000 to about 11,000 resulting from the reaction of ethylene oxide groups with a hydrophobic base constituted of the reaction product of ethylene diamine and excess propylene oxide, said base having a molecular weight of the order of 2,500 to 3,000, are satisfactory.
3. The condensation product of aliphatic alcohols having from 8 to 18 carbon atoms, in either straight chain or branched chain configuration, with ethylene oxide, e.g., a coconut alcohol ethylene oxide condensate having from 10 to 30 moles of ethylene oxide per mole of coconut alcohol, the coconut alcohol fraction having from 10 to 14 carbon atoms.
4. Long chain tertiary amine oxides corresponding to the following general formula:

$$R_1R_2R_3N \rightarrow O$$

wherein R_1 contains an alkyl, alkenyl or monohydroxy alkyl radical of from about 8 to about 18 carbon atoms, from 0 to about 10 ethylene oxide moieties, and from 0 to 1 glyceryl moiety, and R_2 and R_3 contain from 1 to about 3 carbon atoms and from 0 to about 1 hydroxy group, e.g., methyl, ethyl, propyl, hydroxy ethyl, or hydroxy propyl radicals. The arrow in the formula is a conventional representation of a semipolar bond. Examples of amine oxides suitable for use in this invention include dimethyldodecylamine oxide, oleyldi(2-hydroxyethyl) amine oxide, dimethyloctylamine oxide, dimethyl-decylamine oxide, dimethyltetradecylamine oxide, 3,6,9-trioxaheptadecyldiethylamine oxide, di(2-hydroxyethyl)-tetradecylamine oxide, 2-dodecoxyethyldimethylamine oxide, 3-dodecoxy-2-hydroxypropyldi(3-hydroxypropyl)amine oxide, dimethylhexadecylamine oxide.
5. Long chain tertiary phosphine oxides corresponding to the following general formula:

$$RR'R''P \rightarrow O$$

wherein R contains an alkyl, alkenyl or monohydroxyalkyl radical ranging from 8 to 18 carbon atoms in chain length, from 0 to about 10 ethylene oxide moieties and from 0 to 1 glyceryl moiety and R' and R" are each alkyl or monohydroxyalkyl groups containing from 1 to 3 carbon atoms. The arrow in the formula is a conventional representation of a semipolar bond. Examples of suitable phosphine oxides are: dodecyldimethylphosphine oxide, tetradecyldimethylphosphine oxide, tetradecylmethylethylphosphine oxide, 3,6,9,-trioxaoctadecyldimethylphosphine oxide, cetyldimethylphosphine oxide, 3-dodecoxy-2-hydroxypropyldi(2-hydroxyethyl) phosphine oxide, stearyldimethylphosphine oxide, cetylethylpropylphosphine oxide, oleyldiethylphosphine oxide, dodecyldiethylphosphine oxide, tetradecyldiethylphosphine oxide, dodecyldipropylphosphine oxide, dodecyldi(hydroxymethyl)phosphine oxide, dodecyldi(2-hydroxyethyl)phosphine oxide, tetradecylmethyl-2-hydroxypropylphosphine oxide, oleyldimethylphosphine oxide, 2-hydroxydodecyldimethylphosphine oxide.
6. Long chain dialkyl sulfoxides containing one short chain alkyl or hydroxy alkyl radical of 1 to about 3 carbon atoms (usually methyl) and one long hydrophobic chain which contain alkyl, alkenyl, hydroxy alkyl, or keto alkyl radicals containing from about 8 to about 20 carbon atoms, from 0 to about 10 ethylene oxide moieties and from 0 to 1 glyceryl moiety. Examples include: octadecyl methyl sulfoxide, 2-ketotridecyl methyl sulfoxide, 3,6,9,-trioxaoctadecyl 2-hydroxyethyl sulfoxide, dodecyl methyl sulfoxide, oleyl 3-hydroxypropyl sulfoxide, tetradecyl methyl sulfoxide, 3-methoxytridecyl methyl sulfoxide, 3-hydroxytridecyl methyl sulfoxide, 3-hydroxy-4-dodecoxybutyl methyl sulfoxide.

Many additional nonsoap surfactants are described in McCUTCHEON'S, DETERGENTS AND EMULSIFIERS, 1979 ANNUAL, published by Allured Publishing Corporation.

The above-mentioned surfactants can be used alone or in combination in the shampoo compositions of the present invention. The anionic surfactants, particularly the alkyl sulfates, the ethoxylated alkyl sulfates and mixtures thereof are preferred for use herein as well as the amido betaines.

Non-Volatile Silicone Fluid

The non-volatile silicone fluid may be either a polyalkyl siloxane, a polyalkylaryl siloxane or a polyether siloxane copolymer at a level of from 0.01% to 10.00% preferably from 0.5% to 5.0%. Mixtures of these fluids may also be used. The silicones should also be insoluble in the shampoo matrix. This is the meaning of "insoluble" as used hereinbefore and hereinafter.

The essentially non-volatile polyalkyl siloxanes that may be used include, for example, polydimethyl siloxanes with viscosities ranging from 5 to 100,000 $mm^2.s^{-1}$ (centistokes) at 25° C. These siloxanes are available for example, from the General Electric Company as the Vicasil(RTM) series and from Dow Corning as the Dow Corning 200 series. The viscosity can be measured by means of a glass capillary viscometer as set forth in Dow Corning Corporate Test Method CTM0004, July 20, 1970.

The essentially non-volatile polyalkylaryl siloxanes that may be used include, for example, polymethylphenylsiloxanes having viscosities of 15 to 65 $mm^2.s^{-1}$ (centistokes) at 25° C. These siloxanes are available, for example, from the General Electric Company as SF 1075 methyl phenyl fluid or from Dow Corning as 556 Cosmetic Grade Fluid.

The essentially non-volatile polyether siloxane copolymer that may be used is, for example, a dimethyl poyoxyalkylene ether copolymer fluid having a nominal viscosity of 1200 to 1500 $mm^2.S^{-1}$ (centistokes) at 25° C. Preferred compounds of this type are polypropylene oxide modified dimethylpolysiloxanes (e.g., Dow Corning DC-1248) although ethylene oxide or mixtures of ethylene oxide and propylene oxide may also be used.

It is also possible to use in the present compositions silicones which have aminofunctional groups such as Dow Corning's X2-8107 material.

References disclosing suitable silicones include the previously mentioned US-A-2,826,551, US-A-3,964,500, US-A-4,364,837 and GB-A-0,849,433.

Long Chain Acyl Derivative Suspending Agent

The suspending agent useful in the present compositions can be any of several long chain acyl derivative materials or mixtures of such materials. Included are ethylene glycol esters of fatty acids having from 16 to 22 carbon atoms. Preferred are the ethylene glycol stearates, both mono and distearate, but particularly the distearate containing less than about 7% of the mono stearate. Other suspending agents found useful are alkanol amides of fatty acids, having from 16 to 22 carbon atoms, preferably 16 to 18 carbon atoms. Preferred alkanol amides are stearic monoethanolamide, stearic diethanolamide, stearic monoisopropanolamide and stearic monoethanolamide stearate.

The suspending agent is present at a level of from 0.50% to 5.0%, preferably from 0.5% to 3.0%. The suspending agent serves to assist in suspending the silicone material and may give pearlescence to the product. Mixtures of suspending agents are also suitable for use in the compositions of this invention.

Water

Water is the last essential component of the present invention. It is generally present at a level of from 20% to 95%, preferably from 60% to 85%.

The shampoos herein can contain a variety of non-essential optional components suitable for rendering such compositions more acceptable. Such conventional optional ingredients are well known to those skilled in the art, e.g., preservatives such as benzyl alcohol, methyl paraben, propyl paraben and imidazolidinyl urea; cationic surfactants such as cetyl trimethyl ammonium chloride, stearyldimethyl benzyl ammonium chloride, and di(partially hydrogenated tallow) dimethylammonium chloride; thickeners and viscosity modifiers such as a diethanolamide of a long chain fatty acid (e.g., PEG 3 lauramide), block polymers of ethylene oxide and propylene oxide such as Pluronic(RTM) F88 offered by BASF Wyandotte, sodium chloride, sodium sulfate, polyvinyl alcohol, and ethyl alcohol; pH adjusting agents such as citric acid, succinic acid, phosphoric acid, sodium hydroxide, sodium carbonate, etc.; perfumes; dyes; and, sequestering agents such as disodium ethylenediamine tetraacetate. Such agents generally are used individually at a level of from 0.01% to 10%, preferably from 0.5% to 5.0% by weight of the composition.

The pH of the present compositions is not critical and may be in the range of from 2 to 10. However, as set forth earlier certain zwitterionic/quaternary compositions preferably have pH's of from 2 to 4.

The shampoos of the present invention can be made by mixing the materials together and heating to about 72° C. The mixture is mixed thoroughly for about 10 minutes at the 72° C temperature before being pumped through a high shear mill and then through a heat exchanger to cool it to about 27° C.

The high shear mill is used to achieve adequate dispersion of the silicone fluid. This is achieved by having the average particle size of the silicones preferably be about 10 µm or less.

In the cooling step, the acyl derivative is crystallized into particles having an average particle size of about 10 µm or less.

The present compositions are used in a conventional manner for cleaning hair. From about 0.1g to about 10g of a composition is applied to hair that has been wetted, generally with water, worked through the hair and then rinsed out.

EXAMPLES I - V

The following compositions are representative of the present invention.

Component	Weight % I	II	III	IV	V
Cocamidopropyl Betaine	18.00	18.00	18.00	18.00	18.00
Di-partially hydrogenated tallow dimethyl ammonium chloride	4.00	2.00	2.00	2.00	2.00
Cetyltrimethylammonium chloride	2.00	2.00	2.00	2.00	2.00
DC-200 Fluid (350 $mm^2.s^{-1}$ (csK)[1]	--	1.00	--	1.75	--
DC-200 Fluid (12500 $mm^2.s^{-1}$ (csK)[2]	1.00	--	--	--	--
DC-1248[3]	--	--	1.00	--	--
DC-X28107	--	--	--	--	1.00
Citric Acid	3.50	3.50	3.50	3.50	3.50
Ethylene Glycol Distearate	1.50	1.50	1.50	1.50	1.50
PEG-3 Alkyl amide[4]	3.00	4.50	4.50	4.50	4.50
Sodium Chloride	--	--	1.00	--	--
Preservative, Dye,	qs 100.000% →				
Perfume and Water	--	--	--	--	--
pH	3.0	3.0	3.0	3.0	3.0

[1]Dimethylpolysiloxane offered by Dow Chemical Co.
[2]Dimethylpolysiloxane offered by Dow Chemical Co.
[3]A dimethicone copolyol offered by Dow Chemical Co.
[4]PEG-3 Alkyl (98% C_{12}) Amide - Mazamide C-2 Experimental

These compositions are stable and deliver good conditioning to hair that is washed with the compositions.

EXAMPLES VI & VII

The following are two anionic shampoo compositions of the present invention.

	Weight %	
Component	VI	VII
TEA C_{12}-C_{14} Alkyl Sulfate	15.00	--
NH_4 C_{12}-C_{14} Alkyl $(Ethoxy)_3$ Sulfate	--	7.90
Sodium C_{12}-C_{14} Alkyl Sulfate	--	7.90
Cocamide MEA	3.00	1.50
Dimethicone DC-200[1]	3.00	3.00
Ethylene Glycol Distearate	1.50	1.50
Citric Acid	0.60	0.60
Trisodium Citrate	0.30	--
Q.S. Color, Preservative, Perfume and Water	q.s. 100%	q.s. 100%

[1] Polydimethylsiloxane having a viscosity of 12,500 $mm^2.S^{-1}$ (csK)

These compositions are also stable and deliver good hair conditioning.

EXAMPLE VIII

To demonstrate the benefit given by the ethylene glycol distearate to the present compositions, the compositions of Examples I-V were prepared without the material. When samples were stored at 10.0° C (50° F), 26.7° C (80° F) and 37.8° C (100° F), all of the compositions without EGDS demonstrated instability with the silicone rising to the top in a clear layer. None of the compositions of the present invention demonstrated any instability. This clearly demonstrates the superiority of the present invention.

Claims

1. A shampoo composition comprising:

   (a) from 5% to 70% of a synthetic surfactant;
   (b) from 0.01% to 10% of a dispersed, insoluble, non-volatile silicone;
   (c) from 0.5% to 5% of a suspending agent selected from long chain acyl derivatives and mixtures thereof, said acyl derivative being present in the shampoo composition in the form of crystals; and
   (d) water,
   wherein the acyl derivate has an average particle size in the shampoo compositions of about 10 µm or less.

2. A shampoo composition according to Claim 1 wherein the surfactant is selected from anionic surfactants, zwitterionic surfactants, amphoteric surfactants and mixtures thereof.

3. A shampoo composition according to Claim 1 or 2 wherein the long chain acyl derivative is selected from ethylene glycol stearates, alkanol amides of fatty acids having from 16 to 22 carbon atoms and mixtures thereof.

4. A shampoo composition according to any of Claims 1 to 3 wherein the non-volatile silicone is selected from polydimethylsiloxanes having viscosities of from 5 to 100,000 $mm^2.s^{-1}$ (centistokes) at 25°C and polypropylene oxide modified dimethylsiloxanes.

5. A shampoo composition according to any of Claims 1 to 4 which in addition contains a quaternary ammonium compound.

6. A shampoo composition according to any of Claims 1 to 5 wherein the surfactant is a betaine.

7. A shampoo composition according to any of Claims 1 to 6 wherein the acyl derivative is ethylene glycol distearate.

8. A shampoo composition according to any of Claims 1 to 7 wherein the shampoo composition has a pH of from 2 to 4.

9. A shampoo composition according to any of Claims 1 to 8 wherein the suspending agent additionally serves to give the shampoo composition pearlescence.

Patentansprüche

1. Shampoozusammensetzung, umfassend:

   (a) 5 bis 70% eines synthetischen Tensids;
   (b) 0,01 bis 10% eines dispergierten, unlöslichen, nichtflüchtigen Silicons;
   (c) 0,5 bis 5% eines Suspendiermittels, gewählt aus langkettigen Acylderivaten und Mischungen hiervon, wobei die Acylderivate in der Shampoozusammensetzung in Form von Kristallen vorliegen; und
   (d) Wasser,
   wobei das Acylderivat eine durchschnittliche Teilchengröße in der Shampoozusammensetzung von etwa 10 µm oder weniger aufweist.

2. Shampoozusammensetzung nach Anspruch 1, wobei das Tensid aus anionischen Tensiden, zwitterionischen Tensiden, amphoteren Tensiden und Mischungen hiervon gewählt ist.

3. Shampoozusammensetzung nach Anspruch 1 oder 2, wobei das langkettige Acylderivat aus Ethylenglykolstearaten, Alkanolamiden von Fettsäuren mit 16 bis 22 Kohlenstoffatomen und Mischungen hiervon gewählt ist.

4. Shampoozusammensetzung nach mindestens einem der Ansprüche 1 bis 3, wobei das nichtflüchtige Silicon aus Polydimethylsiloxanen mit Viskositäten von 5 bis 100.000 $mm^2.s^{-1}$ (centistokes) bei 25°C und Polypropylenoxid-modifizierten Dimethylsiloxanen gewählt ist.

5. Shampoozusammensetzung nach mindestens einem der Ansprüche 1 bis 4, welche zusätzlich eine quaternäre Ammoniumverbindung enthält.

6. Shampoozusammensetzung nach mindestens einem der Ansprüche 1 bis 5, wobei das Tensid ein Betain ist.

7. Shampoozusammensetzung nach mindestens einem der Ansprüche 1 bis 6, wobei das Acylderivat Ethylenglycoldistearat ist.

8. Shampoozusammensetzung nach mindestens einem der Ansprüche 1 bis 7, wobei die Shampoozusammensetzung einen pH von 2 bis 4 aufweist.

9. Shampoozusammensetzung nach mindestens einem der Ansprüche 1 bis 8, wobei das Suspendiermittel weiterhin dazu dient, der Shampoozusammensetzung Perlmuttglanz zu verleihen.

Revendications

1. Composition de shampooing comprenant :

   (a) de 5 % à 70 % d'un agent tensioactif synthétique ;
   (b) de 0,01 % à 10 % d'une silicone dispersée, insoluble, non-volatile ;
   (c) de 0,5 % à 5 % d'un agent de suspension choisi parmi des dérivés d'acyle à longue chaîne et leurs mélanges, ledit dérivé d'acyle étant présent sous forme de cristaux dans la composition de shampooing ; et
   (d) de l'eau,

le dérivé d'acyle ayant une taille particulaire moyenne dans les compositions de shampooings d'environ 10 µm ou moins.

2. Composition de shampooing selon la revendication 1, dans laquelle l'agent tensioactif est choisi parmi des agents tensioactifs anioniques, des agents tensioactifs zwittérioniques, des agents tensioactifs amphotères et leurs mélanges.

3. Composition de shampooing selon la revendication 1 ou 2, dans laquelle le dérivé d'acyle à longue chaîne est choisi parmi des stéarates d'éthylèneglycol, des alcanolamides d'acides gras ayant de 16 à 22 atomes de carbone et leurs mélanges.

4. Composition de shampooing selon l'une quelconque des revendications 1 à 3, dans laquelle la silicone non-volatile est choisie parmi des polydiméthylsiloxanes ayant des viscosités de 5 à 100 000 $mm^2.s^{-1}$ (centistokes) à 25°C et des diméthylsiloxanes modifiés par du poly(oxyde de propylène).

5. Composition de shampooing selon l'une quelconque des revendications 1 à 4, qui contient en outre un composé d'ammonium quaternaire.

6. Composition de shampooing selon l'une quelconque des revendications 1 à 5, dans laquelle l'agent tensioactif est une bétaïne.

7. Composition de shampooing selon l'une quelconque des revendications 1 à 6, dans laquelle le dérivé d'acyle est le distéarate d'éthylèneglycol.

8. Composition de shampooing selon l'une quelconque des revendications 1 à 7, dans laquelle la composition de shampooing a un pH de 2 à 4.

9. Composition de shampooing selon l'une quelconque des revendications 1 à 8, dans laquelle l'agent de suspension sert en outre à conférer de l'opalescence à la composition de shampooing.

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